chapter 4

PREVENTING POLLUTION

It's easier, cheaper, and more effective to prevent pollution than to clean it up after it's produced. EPA has a number of voluntary pollution prevention partnerships with states, local governments and businesses, involving recycling, waste minimization, energy efficiency, and much more. For details, go to www.epa.gov/region09/p2.

Preventing Pollution Through Incentives, Enforcement

EPA also works with state and tribal governments to encourage voluntary pollution prevention efforts and enforce federal regulations that prevent pollution, such as rules to prevent leaks in underground fuel storage tanks; hazardous waste storage, tracking, and disposal regulations; and public disclosure of toxic releases and use (the Toxics Release Inventory, available on the Web at *www.epa.gov/tri)*.

Regulated facilities, from military bases to oil refineries to the corner gas station, are subject to surprise inspections by EPA and state, county, or tribal environmental inspectors. Penalties are adjusted to fit the seriousness of the violation and the responsible party's ability to pay.

Fines can add up quickly for major facilities with multiple violations. Last year, for example, a joint EPA/Hawaii Department of Health case against the University of Hawaii resulted in a record $1.7 million penalty. The University had numerous violations of hazardous waste regulations and was storing the wastes in ways that endangered students and staff.

Partnerships

EPA's Pacific Southwest Agriculture Initiative

Agriculture is an extremely important economic sector in the Pacific Southwest. It accounts for the majority of land use and has major impacts on public health and natural resources. EPA's regional Agriculture Initiative supports sustainable farming methods that are economically viable, environmentally sound, and socially responsible. Since 1994, EPA has been working with growers, the U.S. Department of Agriculture, state agencies, universities, and nonprofits on dozens of EPA grant–funded projects. Highlights include:

EPA Agriculture Grants in 2001

Last year, EPA awarded $454,200 in new grants to fund nine California projects to reduce pesticide use and support environmentally responsible farming practices, including new pest management strategies that minimize use of toxic pesticides such as organophosphates, carbamate and other carcinogens.

"This funding represents the EPA's continuing commitment to work with the farming community, academia, other government agencies and nonprofits to lessen pesticide use and risk in California," says Enrique Manzanilla, a division director in EPA's Pacific Southwest office in San Francisco. "Ultimately these projects will result in improved environmental and health conditions for everyone from the field workers who apply pesticides to the consumers who enjoy the produce." EPA awarded grants to:

- University of California (Davis) Sustainable Agriculture Research & Education Program (UCSAREP), $200,000 for the Biologically Integrated Farming Systems Project, which conducts research and development on biologically–based practices and reduced pesticide use, through public–private partnerships with growers of commodities such as prunes, almonds, apples grapes, dairy products, and strawberries.
- Organic Farming Research Foundation (Santa Cruz), $84,000 to support the research and development of organic methods for pest and disease management.
- Center for Agricultural Partnerships, $30,000 for on–farm trials of pheremones and other integrated pest management methods to reduced pesticide use on walnuts.

Opposite: EPA awarded a $30,000 grant last year to the Sonoma County Grape Growers for on–farm demonstrations of pest management alternatives for wine grapes. Photo by Gerald F. S. Hiatt. Below: Jamie Liebman of EPA's regional agriculture team, at a cotton gin near Chowchilla, Calif. EPA Photo

- Minor Crops Council (Visalia), $30,000 to identify pest management priorities and strategies for 10 commodities.
- Sonoma County Grape Growers (Santa Rosa), $30,000 for on–farm experiments, education, and demonstrations of pest management alternatives for wine grapes.
- UC Riverside Entomology Department (Coachella Valley), $30,000 for research

EPA's regional Agriculture Initiative supports sustainable farming methods that are economically viable and environmentally sound.

and development on alternatives to pesticides for ant control on table grapes.

- California Prune Board (Fresno), $22,000 to develop a pest management strategy and a database to track its results.
- UCSAREP (Davis), $20,000 for on–farm research and demonstration of the use of weather models for disease management in strawberries, which can potentially reduce fungicide use.
- California Tree Fruit Agreement growers, $8,200 for outreach to farmers and demonstrations of methods to reduce pesticide risks and use on peaches, plums and nectarines.

Agriculture Grants Get Results

The results of EPA's support of UCSAREP's Biologically Integrated Farming Systems (BIFS) and similar agricultural projects over the past few years are impressive. Among them:

- By 2000, 27 cotton growers participating in the nonprofit Sustainable Cotton Project's Biological Agriculture Systems in Cotton (BASIC) program reduced their use of insecticides and miticides by 83%, thereby reducing production costs by as much as $150 per acre.
- Results of the Biologically Integrated Farming Systems project include reductions in the use of organophosphates and other toxic pesticides, prevention of water pollution, and adoption of integrated pest and soil management methods. (See specifics in the chart below).

Summary of Impacts of Biologically Integrated Farming Systems (BIFS) Projects*

BIFS Project	Acres Farmed by BIFS Growers	# of BIFS Growers	Impacts on Pesticide Use	Other Impacts	Other Accomplishments
Prunes	6,303	33	Diazinon (an OP**) was eliminated on all BIFS farms	Use of irrigation water reduced on nearly all BIFS prune farms	24 educational meetings reached 1,100 people in 2000
Walnuts	3,430	12	83% of BIFS orchards eliminated OPs in 2000	BIFS growers reduced Nitrogen fertilizer use by 53 lbs per acre (avg)	Cover crops increased from 60% in 1999 to 75% in 2000
Apples	1,540	19	19 BIFS orchards reduced OPs by 59% and carbamates by 92%	Use of all traditional pesticides was reduced by 72% in BIFS orchards	Actual cost is $296/acre which is only $10 more than conventional
Rice	14,000	9	BIFS growers use less than half the amt of herbicides compared to avg	Alternative practices include non-chemical weed methods	Also includes reduced use of chemical fertilizer
Dairy	5,500	11	Reduced use of synthetic fertilizers	Demonstrate improved liquid manure management	Controlled use of water nutrients help prevent water contamination

* Source: UCSAREP. Complete data is available at: www.sarep.ucdavis.edu ** OP= organophosphate; BIFS = Biologically Integrated Farming System

Whitman Praises Scottsdale, Arizona and Intel for Environmental Excellence

On a January 9, 2002, visit to Arizona, EPA Administrator Christie Whitman praised the city of Scottsdale's government and the Intel computer chip manufacturing facility in Chandler for their environmental achievements in two EPA voluntary pollution prevention programs, Performance Track and Project XL (for eXcellence and Leadership).

Performance Track is a voluntary program for business, industry, and local governments in which members commit to improving their environmental performance over a three–year period, then track their progress toward the goals they set. From 1997 to 2000, the city government of Scottsdale improved its energy efficiency by nearly 20%, thus preventing an estimated 3.3 million tons of air pollution and saving local taxpayers $80,000 in energy costs. The city

also tripled its use of compressed natural gas, which burns cleaner than gasoline, to fuel vehicles.

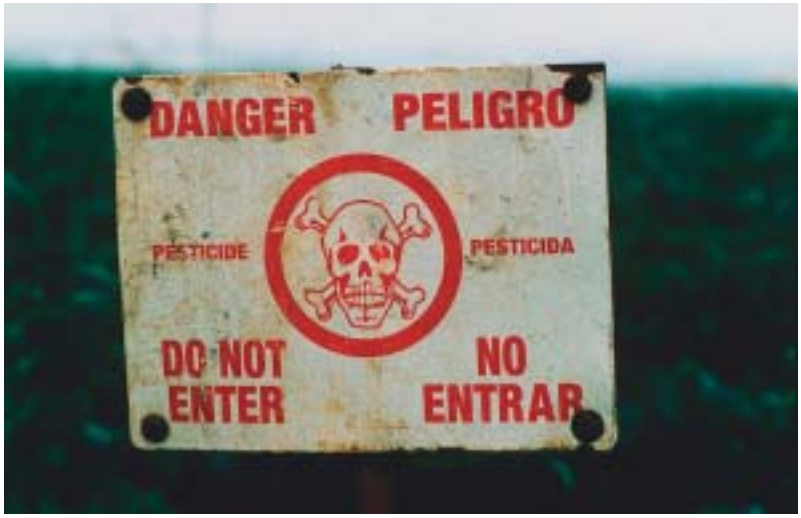
EPA's Pacific Southwest Region has 30 participants in Performance Track, including the cities of Berkeley and San Diego, Calif. All have made specific commitments to reduce the amounts of solid waste they generate, the electricity and water they use, and reach other environmental goals. EPA is helping the latter two cities set up Environmental Management Systems to identify opportunities for improvement.

Whitman called the Intel XL program a model for the nation. In five years, the Chandler facility has recycled 2.5 billion gallons of water, and now recycles 65% of its waste. For details on this and other innovative projects, go to *www.epa.gov/Region09/cross_pr/innovations*.

EPA Grants Fund State, Local Initiatives

Last year, EPA's Pollution Prevention program in the Pacific Southwest managed over $3 million in active grants, including funding for:

- The California Department of Health Services to conduct waste audits as six hospitals participating in EPA's Hospitals for a Healthy Environment partnership. The hospitals achieved substantial reductions in waste materials such as mercury, plastic blue wrap, janitorial chemicals, and cardboard. One hospital alone reduced plastic waste – which formerly went to an incinerator — by 13 tons annually.
- The Nevada Small Business Development Center's Business Environmental Program, which responded to 793 calls for assistance, trained 419 people and conducted 85 on–site consultations, reducing waste by 139,108 pounds, and saving businesses $48,280.
- The California State Water Resources Control Board, to train 100 inspectors on pollution prevention for metal finishing in Sacramento, San Jose, San Francisco and San Diego. The training was based on EPA–developed tools and approaches.
- Western Nevada Community College, to establish a STAR (Spray Technique Analysis and Research) training program and trained painters to use efficient techniques.
- The Arizona Department of Environmental Quality (ADEQ) to work with seven companies to reduce their generation of persistent, bioaccumulative, toxic wastes. They eliminated a combined total of 8,191lbs. of chrome, 113,000 lbs. of lead, 615 lbs. of nickel, 36,279 lbs. of copper and 120 lbs. of mercury from their waste streams.



To protect workers, warning signs like this must be posted in agricultural fields during and immediately after pesticide application. EPA photo.

Nevada Mines Partnership Aims to Reduce Mercury Emissions

Since a new toxics disclosure regulation took effect in 1998, Nevada gold mines have reported releasing more than 13,000 pounds of vaporized, highly toxic mercury each year. EPA has been working with the mine operators to drastically reduce these emissions.

Mercury affects the nervous system and has long been known to have toxic effects on humans and wildlife. It also accumulates in the tissues of animals and is very persistent in the environment. Because mercury dissolves in water, it can have devastating effects on aquatic ecosystems.

"Once the reporting began, the amount of mercury emissions reported by Nevada gold mines really shocked us," says Dave Jones, Waste Division Associate Director in EPA's

Pacific Southwest office. "One facility had a total of over 9,400 pounds of mercury in their emissions while another had over 2,200 pounds. By comparison, an average coal–fired power plant emits only about 250 pounds of mercury per year. These data really pinpointed an area that needed immediate attention."

EPA and the Nevada Department of Environmental Protection (NDEP) approached the mining industry, which expressed interest in voluntarily reducing mercury emissions. Then, over the past two years, the gold mines tracked down their mercury sources, and developed mercury control strategies. EPA, NDEP, and the mines are now working together in a voluntary partnership to establish specific goals for mercury emission reductions. Proposals to reduce mercury emissions by 33 percent by the end of 2002 and 50 percept by the end of 2003 are under discussion.

EPA's national database of toxic releases and use, the Toxics Release Inventory, is on the Web at *www.epa.gov/tri*. It is searchable by zip code, to provide local data to users nationwide.

Jewelry Mart Partnership Looks to Reduce Toxics

Some of Nevada's gold production ends up in downtown Los Angeles, whose jewelry manufacturing district is the nation's second largest, with more than 30 high–rise buildings providing space for about 700 businesses, mostly small, that employ 15,000 workers. Many of them are exposed to toxic heavy metals in the air they breathe. EPA, in partnership with state and local governments, jewelry manufacturers, and building owners is creatively solving the "Jewelry Mart" district's pollution problems.

EPA's Nancy Rumrill inspects a hazardous waste storage area. EPA photo.

Emissions produced by each individual business typically do not exceed legal limits, but the emissions they produce collectively are dangerous. Tests by the California Department of Toxic Substances Control have confirmed hazardous levels of cadmium, chromium, lead, copper, nickel, silver, and zinc in the air, threatening the health of workers, as well as people simply walking by.

Environmental inspectors often found that workers were not using protective gear. They also discovered that some manufacturers may have discharged acid and cyanide solutions into drains, which can combine to create deadly hydrogen cyanide gas.

Changing the situation is complicated by the fact that many of the artisans and workers speak languages other than English. Nevertheless, this government–business partnership has developed guidelines to ensure that jewelry makers can safely reduce, recycle, store, and dispose of jewelry manufacturing wastes.

"The partnership is providing these small businesses with clear guidelines and technical and financial information to make them safe for workers and the environment," says Kathy Kaplan, Industry Partnership Coordinator for waste programs in EPA's Pacific Southwest Region. "The size of these operations, and their economic importance to Los Angeles, call for creative, partnership–oriented solutions."

Integrated Pest Management in Schools

EPA's Pacific Southwest pesticide program is making a concerted effort to introduce integrated pest management (IPM) projects in schools, to reduce children's exposure to toxic pesticides. IPM minimizes use of toxics while still keeping schools free of pests. The following are highlights of several IPM projects currently underway. These projects, together with other IPM efforts EPA supported in the region, have the potential to benefit over a million children.

- Los Angeles Unified School District (LAUSD): This gigantic school district,

with approximately 800,000 students and 75,000 employees, used EPA Buy Clean for Schools grant funds to train school personnel in IPM approaches, such as low–risk alternatives to pesticides. Since the district's IPM policy was initiated, LAUSD has reduced the number of pesticides used on school grounds from 120 to 35 products. LAUSD will also develop an IPM manual for all staff, and training procedures to be shared with other districts.

- Kyrene School District, Tempe, AZ: This partnership of universities, the private sector, and state and federal agencies initially involved three pilot schools, where a 90% reduction in pesticide use was achieved. It was so successful it will be expanded to cover the whole district, which includes 25 schools serving approximately 20,000 students. The partners produced a brochure describing the Kyrene model. EPA provided additional funds to study the use of organic acids to reduce fire ant and mosquito populations.

Recycling

EPA's national goal is for recycling and composting to divert at least 35% of municipal solid waste from landfills and combustion, by working in partnership with state and local governments and the private sector. California has already far exceeded this, recycling 46% of its trash by 2000, thanks largely to a 1989 state law, sponsored by State Senator Byron Sher, that required local governments to achieve a 50% waste reduction goal within ten years (a subsequent law extended the deadline to 2005). EPA catalyzes local waste reduction efforts through grants. Over the last three years, EPA support for recycling in California included:

- A grant to Solana Recyclers in Encinitas, San Diego County, which trained 218 community college students to conduct waste audits, reduced waste by 3,500 tons, conducted audits that saved local businesses more than $500,000, and expanded the Recycled Product Purchasing Cooperative nationwide. The cooperative sells low cost recycled paper to 150 organizations and has become self-sustaining (for details, go to *www.recycledproducts.org*).
- A grant to the San Francisco–based Materials for the Future Foundation for five building deconstruction pilot projects that provided job training to 221 people, diverted 2,119 tons of lumber and steel from landfills, and leveraged more than $600,000 in outside funding.

Kathy Baylor of EPA's regional waste division (left), with contract personnel taking samples of hazardous waste on Guam. EPA Photo.

Reusing and recycling these building materials reduced greenhouse gas emissions by 898 metric tons of carbon equivalent, equal to a year's emissions from 675 cars.

- EPA's California Jobs Through Recycling grant helped start nine recycling businesses in Alameda County, creating 60 local jobs and diverting 37,177 tons of waste per year from landfills. One of these, Bay Area Tire Recycling in San Leandro, processes 7,500 tons of tires per year to produce rubberized asphalt for road surfacing. The company expects to reach 15,000 tons per year. This grant also supports:
- St. Vincent de Paul, a nonprofit that recycles mattresses, box springs, couches, recliners, and hide–a–beds, producing polyurethane foam, shredded spring steel, shredded mixed fiber, and shredded wood. The group recycles 1,440 tons per year of materials that would otherwise end up in landfills.

Other states have farther to go. Nevada, for example, recycled only 11% of its waste in 2000. To help jump–start recycling in Nevada, in March 2001 EPA co–sponsored the Nevada Recycling Forum in Las Vegas with the Nevada Department of Environmental Protection (NDEP) and Clark County (Las Vegas area) Health District. Nearly 100 people attended the forum, which focused on recycling opportunities.

EPA's support of recycling in Nevada, Arizona, and Hawaii included grants to:

- The Clark County Public Education Foundation, to establish a materials reuse warehouse and conduct recycling and reuse education in Clark County, Nev.
- Stardust Building Supplies in Phoenix, Ariz., for a model residential demolition permit review program and will recover reusable building materials from 90 homes prior to demolition.
- Maui Recycling Group in Pukalani, to expand a comprehensive Web–based electronic reuse database for Hawaiian nonprofit organizations and the public.

Making EPA and Federal Agencies Greener

Last year, employees at EPA's Pacific Southwest Regional Office in San Francisco recycled over 190 tons of cans, bottles, and paper worth $16,000 from their offices. But EPA's efforts to make the federal government "greener" didn't end there. Last year EPA also:

Sign on Pyramid Lake Paiute land. EPA Photo.

- reviewed and commented on 63, or 100%, of federal agencies' Draft Environmental Impact Statements (EISs) in the Pacific Southwest. In EISs, the agencies must analyze the environmental impact of a proposed action. Examples include permits for mining, or constructing freeways and federally–funded water and flood control projects. EPA reviews of Draft EISs are done when projects are still in the planning stage, and EPA can raise issues that reduce environmental impacts. EPA's comments last year brought about major changes to protect the environment in the Colusa Basin (Calif.) Integrated Resources Management Plan, the East Bay (Calif.) Municipal Utility District Supplemental Water Supply Project, and the Salton Sea (Calif.) Restoration Project.
- conducted Environmental Management Reviews at General Services Administration (GSA) facilities in San Francisco and Tucson, and the Naval Base Point Loma in San Diego. These reviews analyze opportunities to reduce waste and pollution by changing standard operating procedures. For major facilities like military bases, the environmental benefits can be huge. Results are tracked by comparing EPA's recommendations with a follow–up report prepared by the facility.
- held pollution prevention workshops for environmental managers at military bases, and for other federal facilities, such as hospitals, on minimizing medical waste, green building practices, and purchasing environmentally preferable products.

Preventing Pesticide, Lead Poisoning on Tribal Lands

To assist tribes in the Pacific Southwest with preventing pesticide and lead poisoning on tribal lands, EPA has issued 29 grants (one to a consortium of four tribes) with a total annual funding level of $2.4 million. EPA has also provided training to tribal environmental agency staff, as well as growers, on compliance with federal pesticide regulations, including the Worker Protection Standard.

The grants support a variety of efforts on tribal lands, such as:

- Enforcement of federal pesticide regulations.
- Conducting reservation–wide pesticide use assessments to identify problem areas.
- Educating school staff, tribal parks and wildlife departments, and tribal communities about the use, misuse, and risks of pesticides.
- Sampling for pesticide contamination in water and in plants used for basketry.

EPA has also been providing funds and training to tribes for several years to help them develop their own lead poisoning prevention programs and assess lead hazards on tribal lands. Last year EPA also awarded grants seven tribes for educational outreach and blood screening.

Soledad Prison Tries Nontoxic Wet Cleaning for Uniforms

EPA and California Department of Corrections (CDC) officials visited Soledad State Prison in June 2001 to announce the nation's first prison program where inmates will use wet cleaning, an environmentally responsible alternative to dry cleaning (which uses toxic chemicals), as part of its vocational training program.

The program, made possible by a $10,000 federal grant from the Vocational and Technical Education Act, $12,000 in CDC vocational funds, and a $40,000 EPA grant to the Environmental Finance Center in Hayward, Calif., allows Soledad inmates to process 23 tons of laundry per year while learning a new trade. Prisoners clean officers' uniforms, prison employees' clothing, and laundry for local non–profit organizations, such as school band uniforms and graduation gowns.

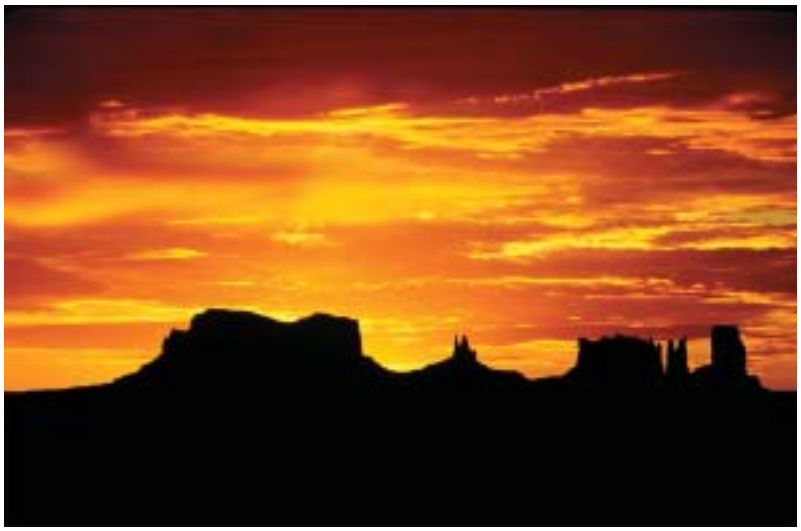
Infrastructure

Over 100 Tribes Now Have Own Environmental Programs

Environmental infrastructure isn't just pipes and concrete. It's also state, local, and tribal government agencies with trained staff enforcing environmental laws. Since state governments have no jurisdiction on Indian lands, the job falls to EPA and the tribes. Of the 572 federally–recognized tribes in the nation, 147 (26%) are located in the Pacific Southwest. These reservations make up nearly 50% of all Indian land in the United States, and have approximately 26% of the total tribal population.

Since the 1980s, EPA has been working with the tribes to build their own environmental agencies to carry out federal environmental laws. Ten years ago, only a handful of tribes in the Pacific Southwest had such programs. Today, about 90% of Pacific Southwest tribes have one, or are developing one.

Sunset in the Monument Valley, on the Navajo Nation. Photo by Gerald F.S. Hiatt.



While many of these programs are still in their initial stages of development, improvements in reservation environments in the last decade have demonstrated the effectiveness of the EPA/tribal partnership. One example is the closing of dozens of open dumps on tribal lands. Tribes in the Pacific Southwest have also made great strides in developing partnerships with other federal and state agencies, as well as with neighboring communities.

To find out more about EPA's work with Indian tribes, go to *www.epa.gov/region09/indian*.

Enforcement

Illegal Household Pest Products Pose Hazards

Last year, EPA assessed penalties totaling over $200,000 against 15 businesses caught selling or distributing illegal, unregistered household pesticide products in violation of federal law. Businesses in California, Nevada, Hawaii, and

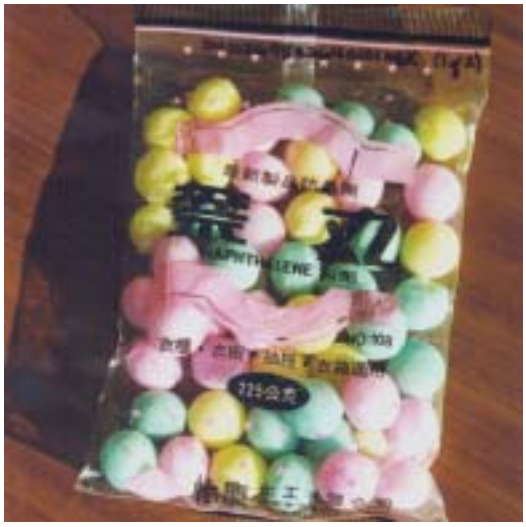
Guam were penalized for selling illegal products such as insecticidal chalk and moth balls (see photo, this page), which are a hazard to children, who may ingest their poisons. Between 1992 and 1995, Poison Control Centers nationwide received 668 reports of poisoning incidents involving insecticide chalk, which is indistinguishable from regular white blackboard chalk. EPA is cooperating with states and tribes in an effort to stop the sale and use of this hazardous product.

How to Identify Illegal Pest Products

If you use such common products as flea and tick repellents for your pets, antibacterial cleansers, mothballs, or other household pest products, take a close look at their labels. Some of these products may be illegal and endanger your children, your pets, or yourself.

Most of the illegal products are also available in legal, registered versions. The main safety concern with these illegal products is that though they may look similar to, and make the same pesticidal claims as, their legal counterparts, the illegal versions have not been thoroughly tested for efficacy and toxicity. Their ingredients often remain unknown. And since the products are unregistered, their labels have not been reviewed for adequate directions and safety warnings.

For example, foreign–labeled, unregistered versions of the common pet products Advantage and Frontline, though registered in other countries, have omitted important warnings, especially those pertaining to children. For versions imported from England and Australia, doses are often given in metric units, which can lead Americans to unwittingly overdose or under–dose pets.



These illegal multicolored mothballs are a hazard to children because they look like candy. Photo by Jim Grove.

Illegal naphthalene moth repellents (mothballs) pose an attractive hazard to young children. Mothballs can easily be mistaken for candy, or simply tempt young children to touch and play with them. Recent studies have linked naphthalene to illnesses, including nasal cancer.

Insecticide chalk has been imported illegally, primarily from China. It is illegal in any form. The toxic chalk poses a particular risk for children because it looks like regular chalk, and lacks child–proof packaging. For more details, go to *www.epa.gov/region09/toxic/pest/chalk*.

Sale and distribution of these types of unregistered products continues to be widespread. If you have any in your house, or see them on sale, call Pam Cooper of EPA's Pacific Southwest Pesticides and Toxics Section, at 415–947–4217.

Lead Hazards, Disclosure, Contractor Certification

Lead poisoning is one of the most serious environmental threats to children. Elevated blood lead levels can retard young children's mental and physical development. EPA and other state and federal agencies are working to protect children from exposure to lead-based paint (present in most homes built before 1978), which is the most common source of lead poisoning.

Sellers and landlords of all homes built before 1978 are required to disclose the presence of lead paint to prospective buyers and tenants. If the seller, landlord, or buyer will want to make the property safe, they should hire a contractor certified for lead paint work. EPA and state agencies certify trained workers and firms who are qualified, as well as people and firms qualified to do the training.

For certified trainers in California, go to *www.dhs.ca.gov/childlead/html/CRTcrse.html*.

For certified trainers in Arizona, Nevada, Hawaii, Pacific islands, and tribal lands, go to *www.epa.gov/region09/toxic/lead/training.html*.

EPA Science

Using GIS for Environmental Justice

Geograpic Information Systems (GIS) is a computer mapping technology that can display any number of variables simultaneously. Last

EPA People

Tag Team Spreads Green Message To Auto Repair Shops

EPA's Leif Magnuson and John Katz have reduced smog and other pollution in the Pacific Southwest through an innovative partnership with the auto and fleet maintenance industries.

The Auto Repair and Fleet Maintenance Pollution Prevention Project, which involved training staff from 24 vehicle fleet facilities and 400 auto shops, last year prevented an estimated 720 tons of pollution and saved over $1 million for participants. This program is a national model for an industry comprised of thousands of small businesses that have a serious cumulative impact on the environment.

There are more than 40,000 auto repair shops in EPA's Pacific Southwest Region. California's South Coast air district (the Los Angeles area) was so concerned about air emissions from solvent sinks in auto shops and similar operations that they banned the use of these sinks, preventing nearly 20 tons of smog-causing air pollution per day. Plus, about 10% of the shops in California are not connected to public sewer systems, so washwater, oil, degreasers and solvents end up contaminating land and groundwater.

Magnuson and Katz developed 15 fact sheets and two videos which directly addressed the needs of shop owners. The materials, available on-line at *www.epa.gov/region09/p2/autofleet*, provide complete technology descriptions, how-to tips, compliance information, and case studies with cost and payback analysis. California, Arizona, Nevada, Tennessee, the U.S. Department of the Interior and several cities are already using the materials.

Magnuson and Katz helped trade associations and state and local agencies reach a point where they can sustain the program on their own. The California Department of Toxic Substances Control, for example, took over the training task for that state, conducting 25 workshops, and training 800 shop owners, workers, and local agency staff in 2001 alone. For more information, call Magnuson, at 415-972-3286, or Katz, at 415-972-3283.

year, EPA used GIS to target an inspection sweep of hazardous waste facilities near schools in low–income, minority neighborhoods in Vernon, Los Angeles County, California.

The goal was to send inspectors to facilities with the greatest potential risk to the largest, most vulnerable populations. The GIS employed census data showing income and ethnicity by zip codes, and ranked hazardous waste facilities based on their proximity to schools. Then, inspectors from EPA, the state Department of Toxic Substances Control, and the city and county fanned out to inspect the facilities closest to schools.

The sweep found violations of state and federal hazardous waste regulations at 14 facilities, which resulted in fines and operational changes to ensure safe handling, storage, and transport of hazardous waste.

Leif Magnuson and John Katz of EPA's regional pollution prevention team. EPA photo.